WE CLAIM:

1. A queuing management system for managing a queue of waiting vessels or persons having a pass-through point comprising:

a camera system configured to generate one or more images of the queue and sequential images of the pass-through point; and

an image processing system configured to calculate information indicative of the anticipated delay in the queue based on the images from the camera system.

2. The queuing management system of claim 1 wherein the image processing system is configured to also calculate the rate at which vessels or persons pass through the pass-through point based on the images.

3. The queuing management system of claim 2 wherein the image processing system is configured to also calculate the number of vessels or persons in the queue based on the images.

4. The queuing management system of claim 3 wherein the image processing system is configured to calculate the number of vessels or person in the queue by determining the length of the queue based on the images and by dividing this length by a number representative of the anticipated average length of the portion of the queue occupied by each vessel or person.

5. The queuing management system of claim 3 wherein the image processing system is configured to also calculate the delay in the queue by dividing the number of vessels or persons in the queue by the rate at which vessels or persons pass through the pass-through point.

6. The queuing management system of claim 1 wherein the image processing system is configured to calculate information indicative of the anticipated delay of vehicles in the queue based on the images from the camera system.

7 A method of managing a queue of waiting vessels or persons having a pass-through point comprising:

generating one or more images of the queue and sequential images of the pass-through point; and

calculating information indicative of the anticipated delay in the queue based on the images.

8. A passageway management system for managing a passageway through which vessels or persons pass comprising:

a camera system configured to generate sequential images of the passageway; and

an image processing system configured to calculate information indicative of the rate at which the vessels or persons pass through the passageway based on the images from the camera system.

9. The passageway management system of claim 8 wherein the image processing system is configured to also count the number of vessels or persons that pass through the passageway based on the images.

10. The passageway management system of claim 9 wherein the image processing system is configured to calculate the information indicative of the rate by dividing the count of the number of vessels or persons that pass through the passageway over a period of time by the period of time.

11. The passageway management system of claim 8 wherein the image processing system is configured to calculate information indicative of the rate at which vehicles pass through the passageway based on the images from the camera.

12. A method of managing a passageway through which vessels or persons pass comprising:

generating sequential images of the passageway; and

calculating information indicative of the rate at which the vessels or persons pass through the passageway based on the images from the camera system.

13. A queuing management system for managing a queue of waiting vessels or persons having a pass-through point:

a camera system configured to generate one or more images of the queue; and

an image processing system configured to determine information indicative of the number of vessels or persons in the queue based on the image or images from the camera system.

14. The queuing management system of claim 13 wherein the image processing system is configured to calculate the information indicative of the number

of vessels or person in the queue by determining the length of the queue based on the image or images and by dividing this length by a number representative of the anticipated average length of the space in the queue occupied by each vessel or person.

15. The queuing management system of claim 14 wherein the image processing system is configured to determine the length of the queue by determining where in at least one of the images the density of edges falls below a threshold.

16. The queuing management system of claim 13 wherein the image processing system is configured to calculate information indicative of the number of vehicles in the queue based on the images from the camera system.

17. A method for managing a queue of waiting vessels or persons having a pass-through point:

generating one or more images of the queue; and

determining information indicative of the number of vessels or persons in the queue based on the image or images.

18. A passageway management system for managing a passageway through which vessels or persons pass comprising:

a camera system configured to generate sequential images of the passageway; and

an image processing system configured to count the number of vessels or persons that pass through the passageway based on the images.

19. The passageway management system of claim 18 wherein the image processing system is configured to calculate the number of vehicles that pass through the passageway based on the images from the camera.

20. A method for managing a passageway through which vessels or persons pass comprising:

generating sequential images of the passageway; and

counting the number of vessels or persons that pass through the passageway based on the images.

21. A passageway management system through which vessels pass comprising:

a camera system configured to generate sequential images of the passageway; and

an image processing system configured to determine the type of each vessel that passes through the passageway based on the images from the camera system.

22. The passageway management system of claim 21 wherein the image processing system is configured to determine the type of each vehicle that passes through the passageway.

23 The passageway management system of claim 22 wherein the image processing system is configured to determine whether the type of each vehicle is a sedan, sport utility vehicle, minivan or pickup.

24. The passageway management system of claim 23 wherein the image processing system is configured to distinguish between a sport utility vehicle and a minivan by comparing the slope of the windshield of the vehicle from the images from the camera system to a reference value.

25. The passageway management system of claim 22 wherein the image processing system is configured to determine the color of each vehicle that passes through the passageway as part of the type determination.

26. The passageway management system of claim 22 wherein the image processing system is configured to determine the type of each vehicle by extracting one or more features of the vehicle from an image of the vehicle and by comparing the extracted one or more features to a database that relates features to vehicle types.

27 The passageway management system of claim 22 further including a neural network configured to assist in determining the type of each vehicle that passes through the passageway.

28 The passageway management system of claim 21 further including a storage area configured to store information indicative of a particular vehicle type and an output device for communicating when a vehicle of the particular type has been detected by the image processing system.

29. A process for managing a passageway through which vessels pass comprising:

generating sequential images of the passageway; and

determining the type of each vessel that passes through the passageway based on the images.

30. A queuing management system for managing a queue of waiting vessels or persons comprising:

a camera system configured to generate sequential images of the queue;

an image processing system configured to detect unusual movement of a vessel or person within the queue based on the images from the camera system; and

an output device configured to communicate any unusual movement detected by the image processing system.

31. The queuing management system of claim 30 wherein the image processing system is configured to detect a vehicle making a U-turn within the queue and wherein the output device is configured to communicate the detection of a U-turn by the image processing system.

32. The queuing management system of claim 30 wherein the image processing system is configured to detect a vehicle making an abnormal lane change within the queue and wherein the output device is configured to communicate the detection of an abnormal lane change by the image processing system.

33. The queuing management system of claim 30 wherein the image processing system is configured to detect a vehicle traveling at an abnormal speed within the queue and wherein the output device is configured to communicate the detection of abnormal speed by the image processing system.

34. A method for managing a queue of waiting vessels or persons comprising:

generating sequential images of the queue;

detecting unusual movement of a vessel or person within the queue based on the images; and

communicating any unusual movement that is detected.